

## The Ants (Formicidae), and some Myrmecophiles, of Sicily.

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*Strongylognathus destefanii*, Emery.—Up to now only a single specimen (the type, a female) of this ant had been taken. I was fortunate enough to find three colonies, as well as a single ♀. On April 6th, I took a single dealated ♀, which was by itself under a stone at Taormina. On April 12th I discovered a strong mixed colony of *S. destefanii* and *Tetramorium ferox* v. *diomedaea*, at Taormina. It was situated under a stone on the hill side, but extended some distance both sides in the stony ground. I should say about 80% of the ♂♂ were *Tetramorium*. The nest was very difficult to dig up, and much time and labour failed to disclose females of either species. Another similar mixed colony was found on the other side of Taormina on April 20th. The ants were under a small stone, but extended widely in the very stony hard ground. In this nest four specimens of the beetle *Dichillus pertusus* were present. Finally on April 22nd, I found a mixed colony of the *Strongylognathus* and *Aphaenogaster semipolita*! I cannot explain this, but the fact remains, and no amount of digging produced a single *Tetramorium*.

Different forms of the genus *Strongylognathus* (of which there are four species, six subspecies, and two varieties, known) have occurred in Algeria, Tunis, Spain, France, Switzerland, Italy, Sicily, Caucasus, Urals, and Central Russia, and have always been found associating with forms of *Tetramorium caespitum*. They possess sickle-shaped jaws similar to those of the true slave-makers *Polyergus*, but have been called degenerate slave-makers, as they appear to have mostly lost the power of making slave raids. Unlike most parasitic ants the female of both host and guest live side by side in the nest. The *Tetramorium* workers bring up males, females, and workers of the *Strongylognathus*, but only rear their own workers. Wasmann suggested that these mixed colonies were founded jointly by a female of each species, but Wheeler rather thinks that the *Strongylognathus* female enters a *Tetramorium* colony after it has already been established. This latter view is perhaps borne out by the finding of solitary *Strongylognathus* females. Such a female is probably waiting near a *Tetramorium* colony, for an opportunity to enter its nest.

As the worker of *Strongylognathus destefanii* is undescribed, I have drawn up the following description of the same:—

♀ *Yellow, shining, antennae, vertex of head, and gaster a little darker than shining and of a brighter yellow than in S. huberi, Emery., with somewhat long erect hairs (slightly longer than in S. huberi) on head and whole body.*

HEAD: broader in comparison to its length than in *huberi*; mandibles long and strong, sharply pointed and very finely striated; clypeus and frontal area smooth and shining; rest of head almost smooth, with fairly large widely separated punctures, and with faint striae on cheeks and temples; antennae rather long, scape slender, funiculus with a rather large, well-marked, 3 jointed club.

THORAX: pronotum and mesonotum smooth and shining; sides of mesothorax and epinotum longitudinally striate; epinotum armed with two short, sharp teeth.

PETIOLE with node high; post-petiole transverse (much more so than in *huberi*) and lower than petiole, both petiole and post-petiole broader than in *huberi*; gaster apparently smooth and shining, but very finely transversely striate.

LONG 3.5-3.8mm.

## Subfamily DOLICHODERINAE.

\* *Bothriomyrmer adriacus* subsp. *ionia* var. *sicula*, Emery.—This form was described by Emery [*Bull. Soc. Vand. Sci. Nat.* 56 17 (1925)] in 1925 from two workers taken in Sicily (locality unknown) by de Stefani many years ago.

On April 22nd I found a large and prosperous colony under a stone at Taormina.

\* *Iridomyrmer humilis*, Mayr.—On March 21st, 1926, in Palermo, I found a number of workers of this introduced species running in small single files on the pavement of a road towards the outskirts of the town. They appeared to come out of a garden, and one ♂ was observed to be carrying an Aphid. This is the first record for Sicily of this pest—the well-known “Argentine Ant”—which has been rapidly extending its range during the last twenty or thirty years and becoming cosmopolitan. In Madeira it has exterminated the local species. It has been introduced into New Orleans (where it now extends over fully 5000 square miles to the Gulf of Mexico), California, Cape Town and Basutoland. MacDougal sent it to me to name from the Canary Isles in 1924, I received it from Guernsey in 1919, and Forel records it from Central France. In Britain—Carpenter recorded its occurrence in vast numbers in Belfast in 1900, where it caused the greatest inconvenience; Waterston sent it to me to name from Edinburgh in 1912; Fryer from Enfield in 1916; Theobald from Eastbourne in 1916, (here I understand two streets are uninhabitable on account of the presence of this species): Keys from Plymouth in 1923; in 1921 Holkyard took it in a hot-house at Broadbottom, Cheshire; in 1922 Britten captured ♀ ♀ in Canary bananas at Fallowfield, Manchester; and in November 1926, I found it at Tring.

*Tapinoma nigerrimum*, Nyl.—This ant was abundant everywhere, nesting under stones, in bushes and rocks, and running on walls and in gardens, etc. A number of males was observed at Taormina on April 6th running on a rock, in the interstices of which the colony was situated; and males and winged females were found in a large colony nesting under a stone on April 21st. A deālated ♀ was taken on April 6th which was walking along a dusty road. Various myrmecophiles were found with this ant—the beetles, *Stenosis brentoides* var. *sicula*, Sol., occurred in two nests at Mondello on March 17th, and again on April 22nd, at Taormina, *Drusilla memnonius*, Er., in a nest under a stone at Palermo on March 21st; and numerous examples of *Anthicus 4-guttatus*, Rossi, were running in company with workers of this ant in the Excelsior Palace Hotel garden at Taormina in March, looking so ant-like that I was frequently taken in. Young males of two spiders *Micaria* sp.?, and *Phrurolithus* sp.?, which were also very ant-like, were found at Mondello on March 17th running in company with ♀ ♀ of *T. nigerrimum*. The most interesting find however was an Aphid of the genus *Paraclitus*, new to science, which Professor F. V. Theobald has named after me. On April 21st at Taormina I found a number of this new species, one winged form being present, in a nest of *T. nigerrimum* under a stone, and when disturbed the ants hastened to carry away these Plant-lice into safety. On April 24th at Mola it was found again in still greater numbers, with the same ant. Forel and other writers have stated that ants of

the genus *Tapinoma* do not keep Aphids, but this discovery proves that they do rear these insects, especially as the Genus *Paracletus* is the most truly myrmecophilous of all.

#### Subfamily FORMICINAE.

*Plagiolepis (Plagiolepis) pygmaea*, Latr.—This little species was abundant at Mondello, Taormina, etc., nesting under stones, and generally a number of queens was present in each nest.

*Acantholepis frauenfeldi*, Mayr.

\* *Acantholepis frauenfeldi*, Mayr. var. *nigra*, Emery.—I found colonies of this variety at Taormina on April 6th, 7th, and 16th, etc., always under stones. Three or more, and on one occasion very many queens, were found in a single nest.

*Acanthomyops (Donisthorpea) niger*, L.

*Acanthomyops (Donisthorpea) alienus*, Först.

*Acanthomyops (Donisthorpea) brunneus* var. *nigro-brunneus*, Donis. (*alieno-brunneus*, For., of Emery's list?)—This dark form of *brunneus*, which I have named *nigro-brunneus* [*Ent. Rec.* 38 18 (1926)], was found nesting under stones, and also, as does the true *brunneus*, in trees. At Palermo on March 16th, workers were observed running at the foot of a wall in a field, and on 21st a colony was found under a stone. In the Hotel garden a colony occurred in a hollow tree, and on March 28th my old Windsor friend the ant's nest beetle, *Euryusa sinuata*, was taken running on a path in company with workers of this ant. Two more specimens of the *Euryusa* were found on April 2nd in the nest of this ant which was situated under a stone.

At Taormina colonies were observed in the wood-mould in holes in olive trees, and on Isola Bella on April 26th another was seen inhabiting a hollow olive tree.

Silvestri [*Boll. Lab. Zool. R. Scuola Agri. Portici* 6 237-38 (1912)] records the capture of two myrmecophilous beetles—*Homocusa acuminata*, Märk., and *Claviger nebrodensis*, Rag., with *A. (D.) brunneus* at S. Guglielmo, near Castelbuono. The last named beetle which, like all the species of the genus *Claviger*, is blind, and is a true guest, being fed by its hosts, and also supplying them with a sweet secretion, was first taken in Sicily by Ragusa, who recorded and described it in 1871 [*Bull. Soc. Ent. Italiana* 3 194-96 (1871)].

\* *Acanthomyops (Donisthorpea) brunneus*, Latr. (Ragusa; Silvestri).

*Acanthomyops (Donisthorpea) emarginatus*, Latr.

*Acanthomyops (Chthonolasius) flavus*, F.

*Formica sanguinea*, Latr.

*Formica fusca*, L., var. *glebaria*, Nyl.—Many workers were seen running about on the rim of a fountain, and on a willow tree, etc., in the Excelsior Palace Hotel garden at Palermo in March.

*Camponotus (Camponotus) ligniperdus*, Latr.

*Camponotus (Camponotus) ragns*, Scop.

*Camponotus (Tanacomyrme) sylvaticus* ssp. *pilicornis* var. *sicula*, Emery. Stray soldiers and workers were taken in cart-tracks, drains, etc., and in spiders' webs in the Hotel garden at Palermo in March. At Mondello on March 17th large colonies were found under stones containing many soldiers, and workers of all sizes.

*Camponotus (Tanacomyrme) aethiops*, Latr.

*Camponotus (Tanaemyrmex) atlantis*, Forel (*pallens*, Nyl.).

\* *Camponotus (Tanaemyrmex) atlantis* ssp. *nylanderi*, Emery.—This subspecies was found at Taormina, Capo S. Andrea, and Mola, nesting under stones, and in walls, etc. Workers were seen running about on leaves, and hunting high up on olive trees, etc. Soldiers were always present in the nests and gynaecoid workers were noticed in several (Taormina 14th April, etc.). Very large and brightly coloured workers (♂ ♀ not 2 2) were found in a nest at Mola on April 24th. In a nest under a large stone in a wall at Taormina (April 15th) the following myrmecophiles occurred—the Cricket *Myrmecophila ochracea*; the beetles *Coluocera formicaria*, *Oochrotus unicolor*, and *Merophysia formicaria* var. *sicula*; the Fish-Insect *Lepisma aurea*; and the little Spring-tail *Cyphodeirus albinus*. Some aphids (*Tetraneura ulmifoliae*, Baker), occurred in another colony on April 18th.

*Camponotus (Myrmoscirus) rufoglaucus* ssp. *micans*, Emery.—On March 16th a number of workers was taken running on a wall, and a single dealated female in a drain by the roadside on 20th at Palermo. At Mondello, on March 17th, a mixed colony of this ant and *Aphaenogaster testaceo-pilosa* var. *semipolita*, was found under a stone. At Capo S. Andrea on April 9th, a very large colony containing a dealated female, soldiers, and workers, was found.

*Camponotus (Myrmentoma) gestroi*, Emery.

*Camponotus (Myrmentoma) lateralis*, Ol.—Workers of this pretty ant were observed on walls, and running on the herbage, etc., at Taormina in April.

\* *Camponotus (Myrmentoma) lateralis* ssp. *spissinodis*, Forel.—A colony of this subspecies was found under a stone at Taormina on April 21st, a number of winged females being present in the nest.

*Camponotus (Myrmentoma) siceli*, Mayr.

*Camponotus (Colobopsis) truncatus*, Spin.

At the base of a rock at Taormina, on April 26th, I found a number of the larvae of the fly, *Vermileo degeeri*, Macq., in their funnel-shaped pits which they construct, after the manner of the true "ant-lions" (*Myrmeleon*), to entrap ants.

The large grey woodlouse *Porcellionides myrmecophilus*, Stein., taken on April 21st and 24th, was taken by Budde-Lund in Dalmatia in nests of *Messor structor*, and by Dollfus in ant's nests at Lentini, Sicily.

Since the first part of this paper was published Professor F. V. Theobald has kindly named the *Aphidae* I took with ants in Sicily:—*Tycheoides albicornis*, Koch., was taken with *Aphaenogaster pallidula*, at Taormina on April 17th; *Tetraneura ulmifoliae*, Baker, (*ulmi*, L.) with *Tetramorium caespitum* ssp., *semilaeve*, at Mola on April 24th; and *Anuraphis siciliensis*, Theob. (a new species), with *Cremastogaster sordidula*, at Taormina on April 27.

Mr. E. E. Green, has also seen the white globular objects, which were being carried by *Cremastogaster luestrygon* ♀ ♀ on April 7th, and he suggests that they might possibly be immature coccids allied to *Margarodes*.

P.S.—Mr. Green also tells me that the coccids I took in a nest of *Camponotus sylvaticus*, at Bordighera on February 18th, 1925, are *Eriococcus bahiae*, Ehrh., see *Ent. Rec.* 38, 17 (1926).